

REMARKS

Applicants wish to thank the Examiner for considering the present application. In the Office Action dated April 21, 2004, claims 1-22 are pending in the application. Applicants respectfully request the Examiner for reconsideration of the rejection of claims 1-22.

Claims 8 and 11 have been amended to overcome the §112 rejections.

Claims 1, 5-6, 8, and 11-12 stand rejected under 35 U.S.C. §103(a) as being patentable over *Gross* (6,507,739) in view of *Ward* (6,167,286).

Applicants have amended claim 1 to highlight that the base stations include adaptive antennas with reconfigurable antenna elements that generate a plurality of communication beams. Control signals are generated at the gateway station and are transmitted to the base stations to form communication beams.

The *Gross* reference teaches a system that includes aircraft radio terminals 220 that generate beams. However, no teaching or suggestion is provided for base stations that have an adaptive antenna with a plurality of panels, each panel having a plurality of reconfigurable main array elements for generating a plurality of communication beams as recited in amended claim 1. The *Ward* reference in Col. 10, line 66 through Col. 11, line 27, teaches a "multi-element main array antenna." No teaching or suggestion is provided having a base station with an adaptive antenna with a plurality of panels, each panel having a plurality of reconfigurable main array elements. Although the *Ward* reference teaches multi-element antenna array, no teaching or suggestion is provided for the capability of reconfiguring the elements. The *Ward* reference is believed to describe fixed beams (and overlapping diversity beams) for communicating with users. Applicants respectfully submit that no teaching or suggestion is provided for the reconfigurability of main array elements since only fixed beams are taught or suggested. Applicants therefore respectfully request the Examiner for reconsideration of the rejection of claim 1.

Claims 5-6, 8 and 11-12 are dependent upon claim 1 and contain further limitations thereof. Therefore, claims 5-6, 8 and 11-12 are also believed to be allowable for the same reasons set forth with respect to claim 1.

Claim 20 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* in further view of *Agee*.

Claim 20 is directed to a communication system that includes a plurality of wireless base stations having adaptive antennas, each having a plurality of panels, each panel

generating a plurality of communication beams. Claim 20 further recites that the gateway station forms a plurality of beams for each of the plurality of panels by communicating control signals to the base stations to form the communication beams so that a user receives at least one link from a first base station of the plurality of wireless stations and a second link from the second base station of the plurality of wireless base stations. Applicants respectfully submit that claim 20 as amended is not taught or suggested in either the *Ward* or *Gross* references. That is, applicants, as mentioned above, respectfully submit that no teaching or suggestion is provided in either the *Ward* or the *Gross* references for adaptive antennas each having a plurality of panels with a plurality of reconfigurable main array elements. The *Agee* reference has been reviewed. In particular, Col. 12, lines 43-58, as set forth by the Examiner have been reviewed. Applicants can find no teaching or suggestion for an adaptive antenna with a plurality of panels, each panel having a plurality of reconfigurable main array elements. Furthermore, no teaching or suggestion is provided for receiving one link from one wireless base station while receiving another link from another wireless base station. Applicants therefore respectfully request the Examiner for reconsideration of claim 20.

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* as applied above to claims 1, 5-6, 8, and 11-12 in further view of *Denney*. Applicants respectfully traverse.

Claim 2 has been canceled above. However, some of the teachings of claim 2 including a plurality of panels, have been added to claim 1. Applicants respectfully submit that although a phased array antenna with multiple panels is taught, there is no teaching or suggestion that the elements of the panels are reconfigurable. The *Denney* reference is deficient in this area because it is directed to the actual mechanical relationship of the panels. Furthermore, no teaching or suggestion is provided in the *Denney* reference for forming a control signal at a gateway station and transmitting the control signals to the base station for controlling the reconfigurable elements. Applicants therefore respectfully request the Examiner to reconsider the above comments with respect to any new rejection of claim 1.

Claims 3-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* as applied to claims 1, 5-6, 8, and 11-12 in further view of *Gutleber*. The *Gross* and *Ward* references each have drawbacks as recited above. Although adaptive multiple interference tracking and canceling is described with respect to the antenna of the *Gutleber* reference, no teaching or suggestion is provided in the reference for the element missing from claim 1 as recited above. Also, there is no teaching or suggestion in the *Gutleber* reference for

combining the antenna into a system having a gateway station that forms communication commands for each of a plurality of panels. Applicants therefore respectfully request the Examiner for reconsideration of claims 3-4.

Claims 9-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* as applied to claims 1, 5-6, 8, and 11-12 in further view of *Murray*. The *Murray* reference is directed to a modular super tile array antenna. Although the system is modular, no teaching or suggestion is provided in the *Murray* reference for the elements missing in the *Gross* and *Ward* references as described above. Furthermore, no teaching or suggestion is provided for forming a combination with *Gross* and *Ward*. Applicants therefore respectfully request the Examiner to reconsider the rejection of claims 9 and 10.

Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* as applied to claims 1, 5-6, 8, and 11-12 in further view of *Kasperkovitz*. Applicants respectfully traverse. The *Kasperkovitz* reference is directed to a phase lock loop for a directly mixing synchronous AM receiver. Claim 13 depends from claim 1. Claim 13 recites that a limiter is coupled to a feedback path. Applicants agree that a limiter LA is shown in Fig. 1. However, the limiter is not in a feedback path. A feedback path feeds the output of a control system back to an input to the control system. No teaching or suggestion is provided for a limiter in a feedback path. Applicants therefore respectfully request the Examiner to reconsider the rejection of claim 13.

Claims 14-17, 19, and 21-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Gross* in view of *Ward* as applied to claims 1, 5-6, 8, and 11-12 in further view of *Agee*.

Claims 14-17 and 19 are dependent upon claim 1. Claim 21 is an independent claim that is directed to a method of communicating a system having a gateway station. Claim 21 has been amended to recite, “at the gateway station, dividing a communication signal into a control signal corresponding to a plurality of reconfigurable elements of a plurality of panels of a plurality of adaptive antennas of a plurality of base stations.” The control signals correspond to a plurality of multiple dynamic links. The control signals are directed to the plurality of base stations and multiple dynamic links are generated from the panels of the plurality of base stations.

Claims 14-17 and 19 are believed to be allowable for the same reasons set forth with respect to claim 1. That is, the *Agee* reference does not teach or suggest the elements missing from the *Gross* and the *Ward* references. With respect to claim 21, applicants

respectfully request the Examiner to reconsider this rejection in view of the comments to claims 20 and 3 above.

Claim 18 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Gross in view of Ward as applied to claims 1, 5-6, 8, and 11-12 in further view of Park in further view of Janc and in further view of Sayegh. Applicants respectfully traverse. Although the three additional references provides some of the teachings, each of these references does not provide the elements missing from the Gross and Ward references nor the motivation to form the combination. That is, no teaching or suggestion is provided in either of the three references for forming an adaptive antenna with a plurality of panels, each having a plurality of reconfigurable main array elements for generating a plurality of communication beams that are formed by control signals from a gateway station that form beam commands for each of the plurality of panels.

In light of the amendments and remarks above, applicants submit that all rejections are now overcome. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments which would place the application in better condition for allowance, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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